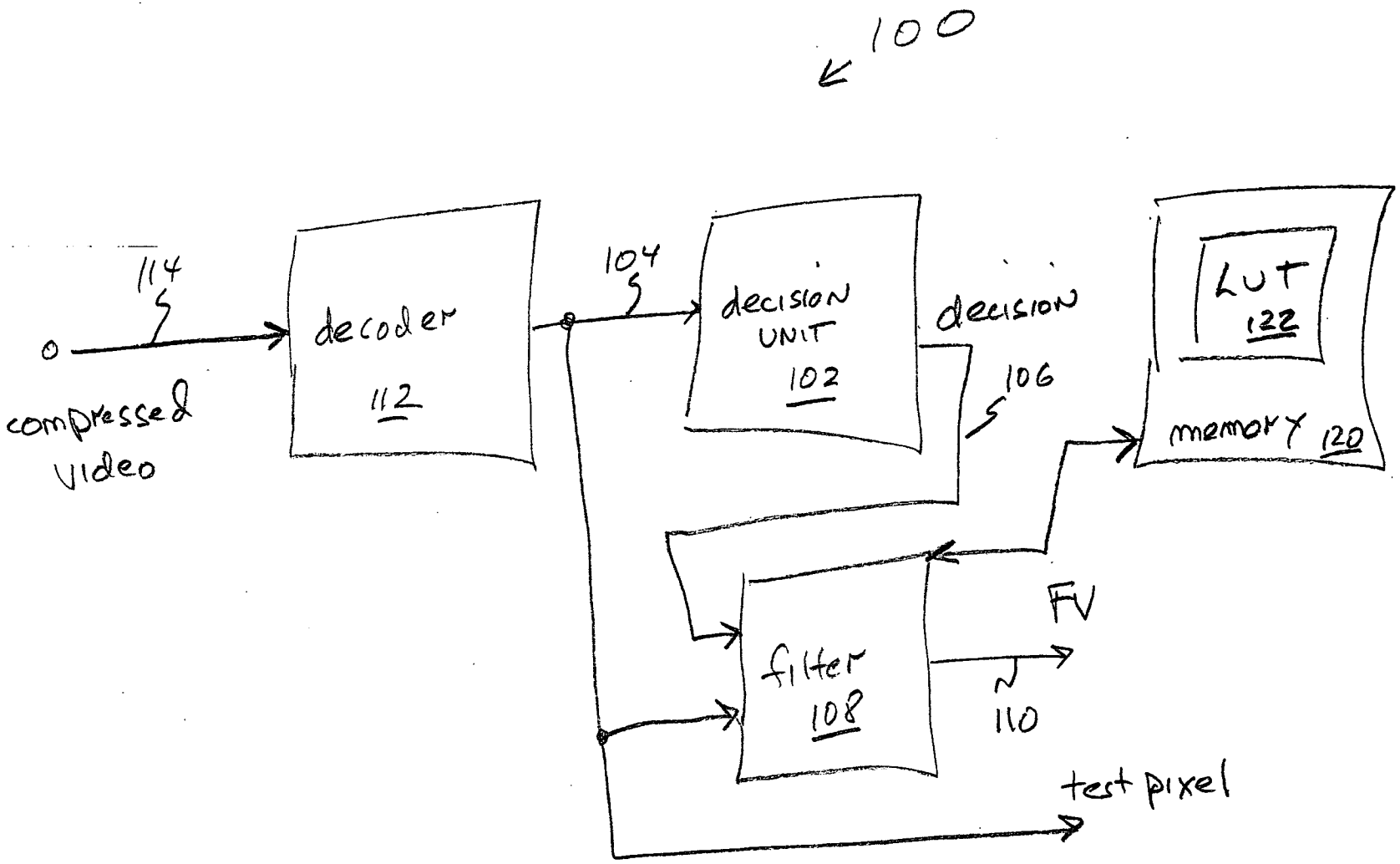


Fig. 1

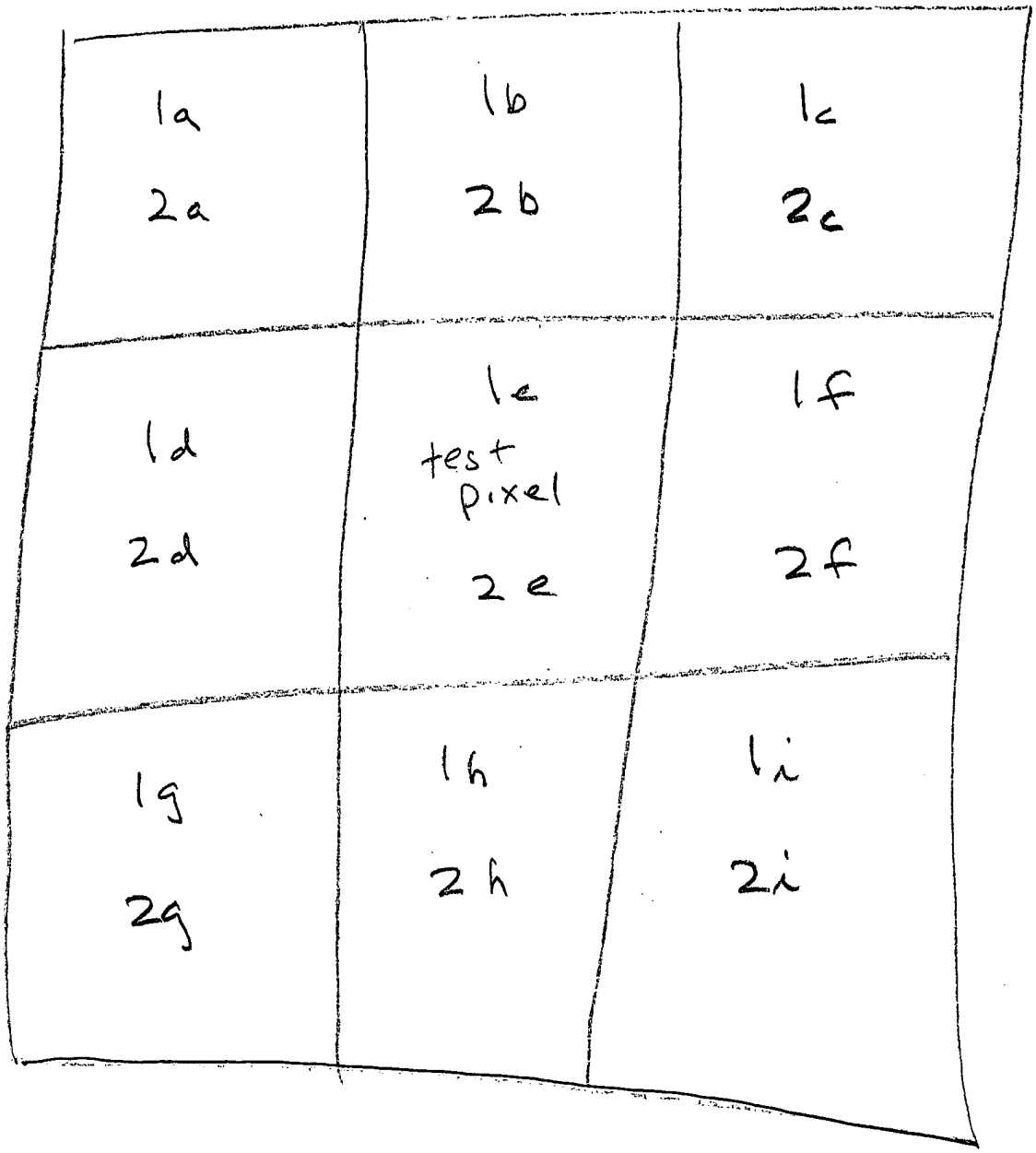
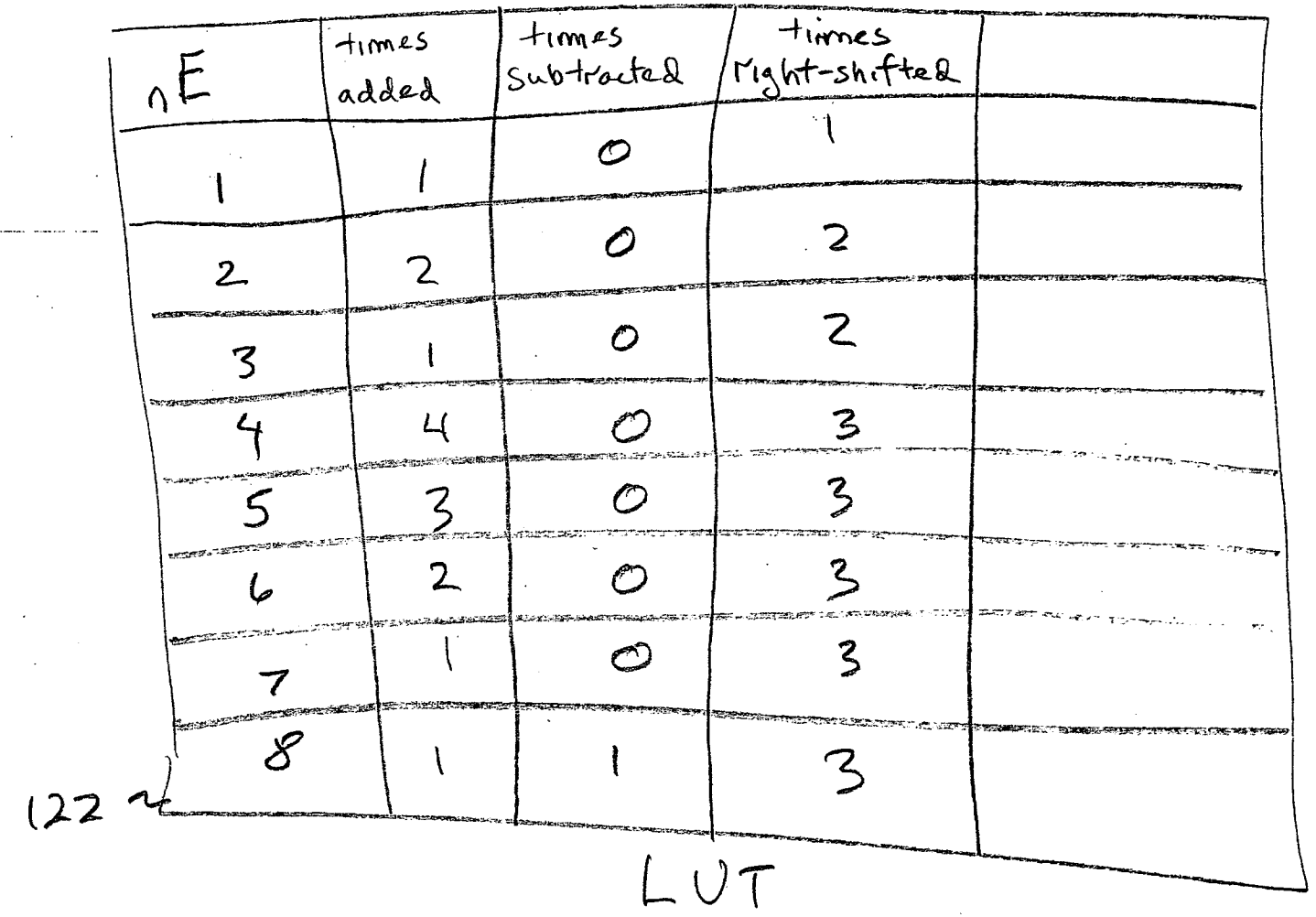


Fig. 2



↑E	times added	times Subtracted	times Right-shifted	
1	1	0	1	
2	2	0	2	
3	1	0	2	
4	4	0	3	
5	3	0	3	
6	2	0	3	
7	1	0	3	
8	1	1	3	

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Fig. 3

```
if(De-ringing filter) //De-ringing filter decision made by decision stage
{
nE=0;
newVal=0;

 for(ix=-1;ix<=1;ix++)
  for(iy=-1;iy<=1;iy++)
    {
        if( Map (i + ix, j + iy) ==0)
        {
                if((ix!=0)||(iy!=0))
                {
                        newVal = newVal + I (i + ix, j + iy);
                        nE++;
                }
        }
    }

if(nE==1)
{
        I(i, j) =(( newVal + I(i, j) + 1)>>1);
}
 else if(nE<4)
{
        for(ii=nE;ii<4;ii++)
         {
                newVal = newVal + I(i, j);
        }
         I(i, j) =(( newVal +2)>>2);
}
 else if(nE<8)
 {
         for(ii=nE;ii<8;ii++)
         {
                 newVal = newVal+ I(i, j);
        }
         I(i, j) =((rAvg+4)>>3);
}
else if(nE==8)
 {
         I(i, j) =(( newVal- I (i + 1, j + 1) + I(i, j) +4)>>3);
}

}
```

Fig. 4 Pseudo-code for de-ringing filter

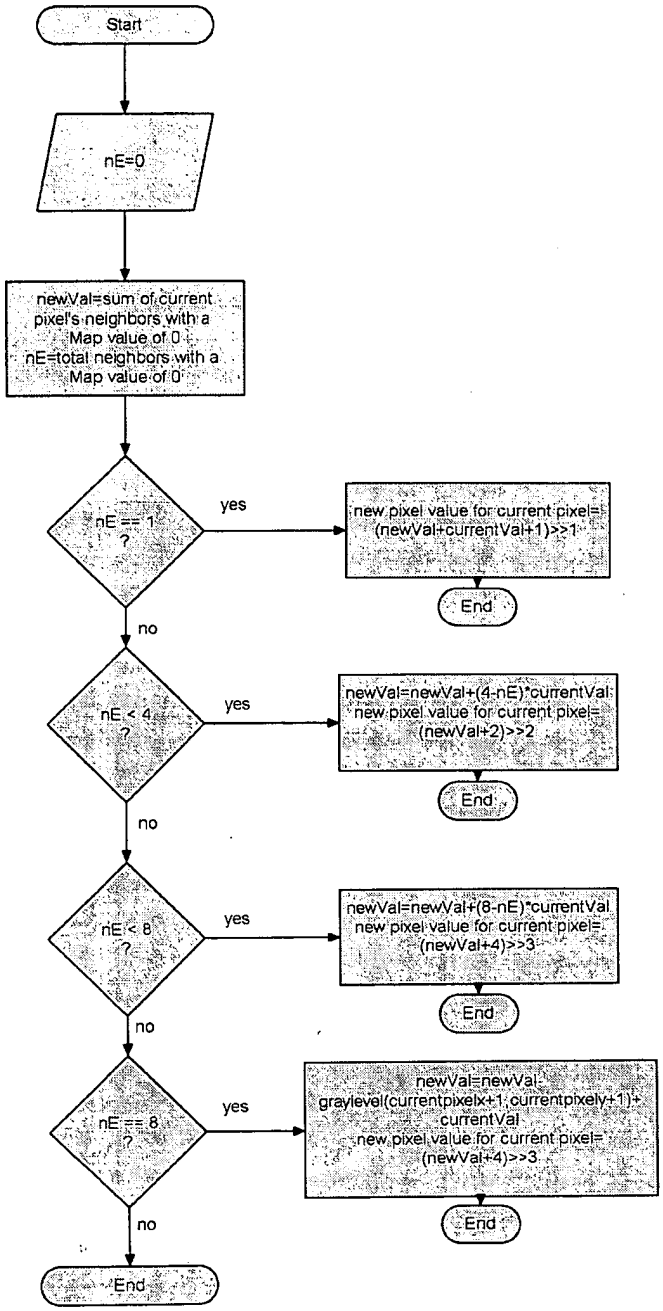

Fig. 5

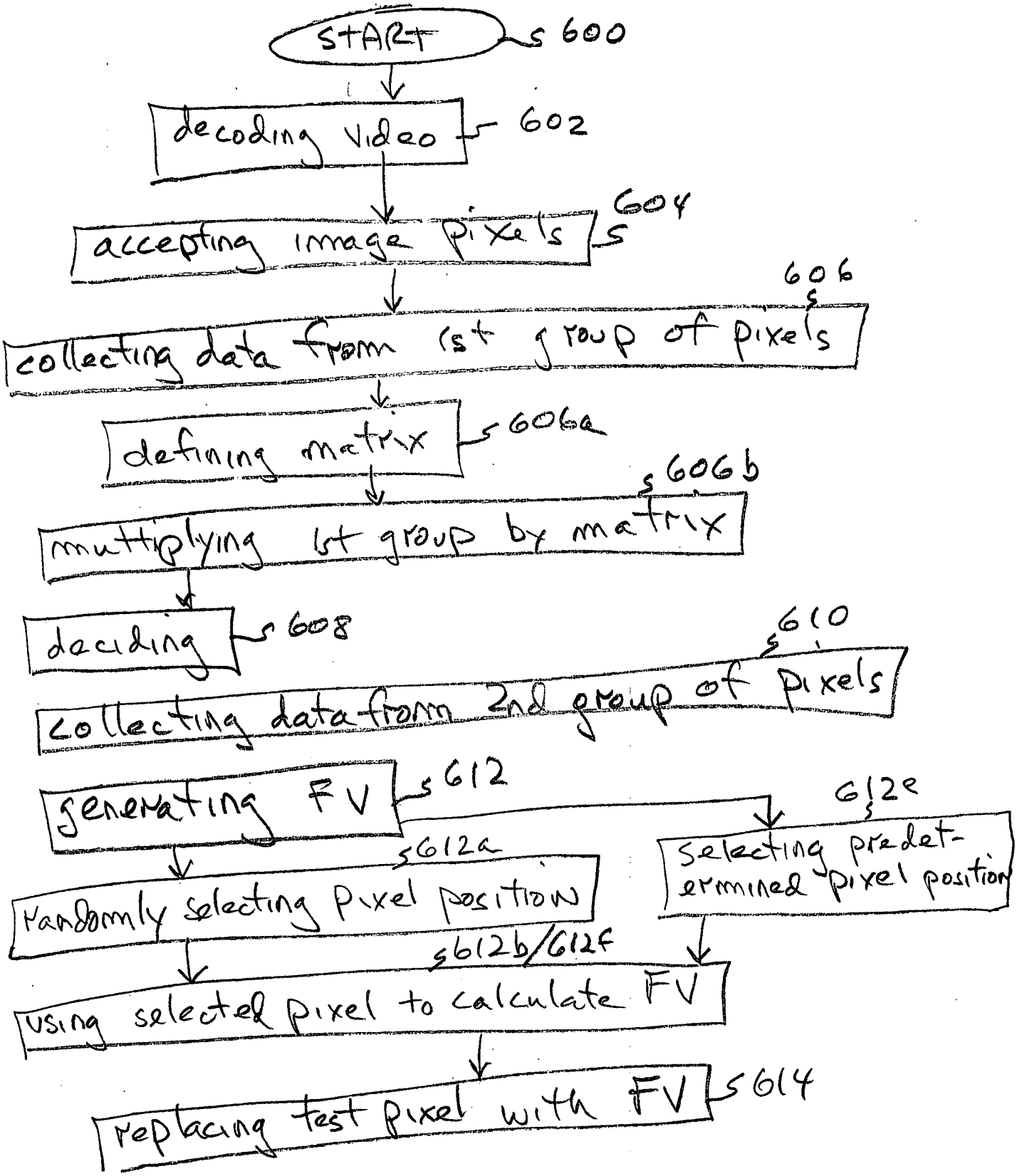

Fig. 6

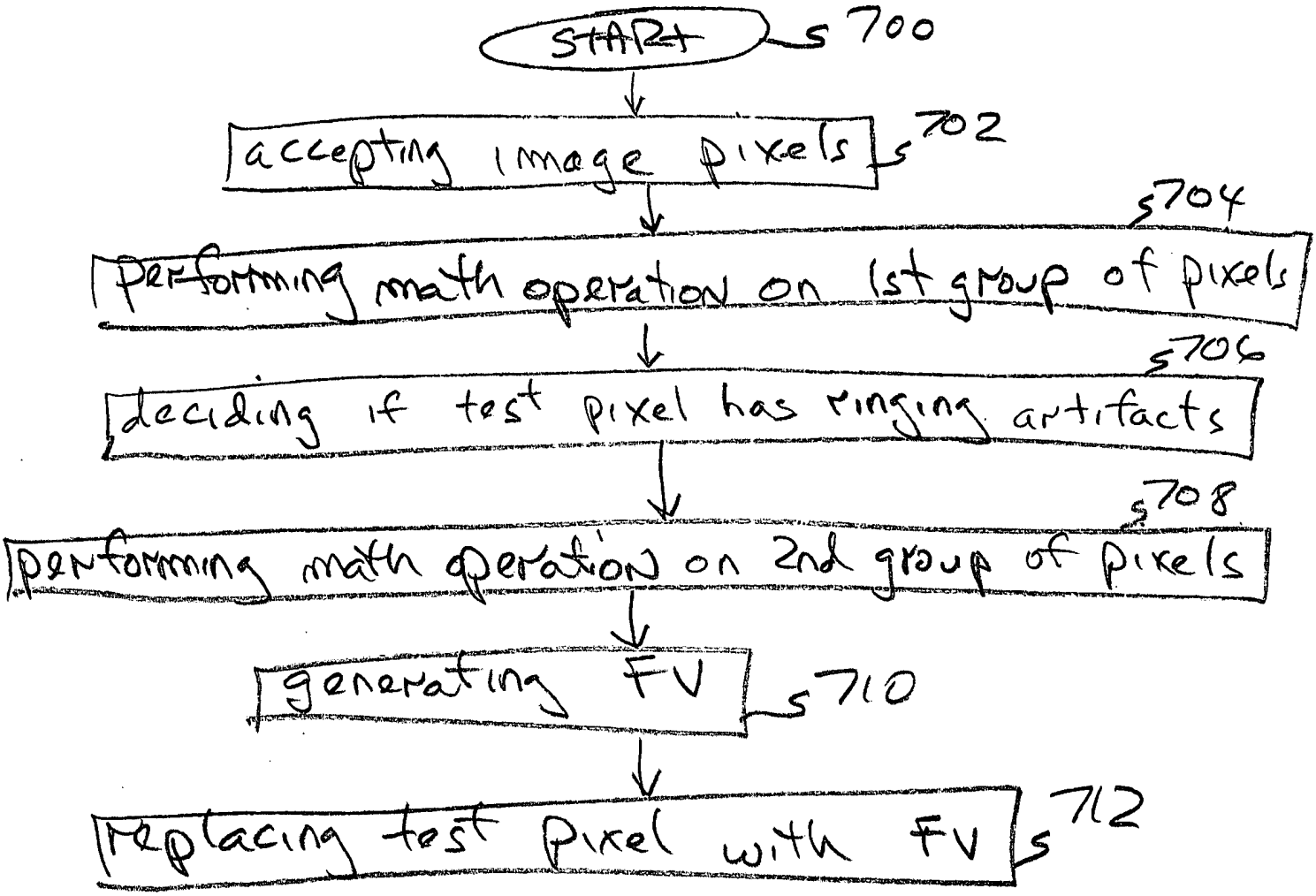

Fig. 7